

WHAT IS CLAIMED IS:

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1. An aqueous solution for micro-etching copper or a copper alloy comprising a main ingredient consisting of sulfuric acid and hydrogen peroxide and an assisting ingredient consisting of phenyltetrazole and a chloride ion source.

2. The aqueous solution according to claim 1, wherein the concentration of sulfuric acid is 60-220 g/l.

3. The aqueous solution according to claim 1, wherein the concentration of hydrogen peroxide is 5-70 g/l.

4. The aqueous solution according to claim 1, wherein the phenyltetrazole is 1-phenyltetrazole or 5-phenyltetrazole.

5. The aqueous solution according to claim 1, wherein the concentration of the phenyltetrazole is 0.01-0.4 g/l.

6. The aqueous solution according to claim 1, wherein the chloride ion source is one or more compounds selected from the group consisting of sodium chloride, potassium chloride, ammonium chloride, and hydrochloric acid.

7. The aqueous solution according to claim 1, wherein the concentration of the chloride ion source is 1-60 ppm.

8. The aqueous solution according to claim 1, further comprising a benzene sulfonic acid.

9. The aqueous solution according to claim 8, wherein the benzene sulfonic acid is one or more compounds selected from the group consisting of benzene sulfonic acid, toluene sulfonic acid, m-xylene sulfonic acid, phenol sulfonic acid, cresol sulfonic acid, sulfosalicylic acid, m-nitro benzene sulfonic acid, and p-amino benzene sulfonic acid.

10. A method of micro-etching a surface of copper or a copper alloy comprising causing the surface of copper or a copper alloy to come into contact with an aqueous solution comprising a main ingredient consisting of sulfuric acid and hydrogen peroxide and an assisting ingredient consisting of phenyltetrazole and a chloride ion source, thereby roughening the surface to an etching amount of 0.5-3 μm .

11. A method of manufacturing a printed circuit board comprising: micro-etching a surface of copper or a copper alloy by causing the surface of copper or a copper alloy to come into contact with an aqueous solution comprising a main ingredient consisting of sulfuric acid and hydrogen peroxide and an assisting ingredient consisting of a phenyltetrazole and a chloride ion source, thereby roughening the surface to an etching amount of 0.5-3 μm , and laminating insulating resin layers.